PATENT ABSTRACTS OF JAPAN

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(54) ROOM TEMPERATURE CURING COMPOSITION AND ITS PRODUCTION

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain the subject composition having sufficiently low viscosity, free from the loss of the flexibility of a cured material even in the case of using an inorganic filler and useful as a sealing material, etc., by mixing plural specific high molecular polymers having different molecular weights.

SOLUTION: (A) 100 pts.wt. of a high molecular weight polymer having a molecular weight of 8000-30000 in which ≥50% total molecular terminal groups are hydrolyzable silicon-containing groups is compounded with (B) 1-200 pts.wt. a high molecular weight polymer of 4000-30000 in which <50% total molecular terminal groups are hydrolyzable silicon-containing groups. Further, it is preferable that both the main chains of the component A and the component B are substantially polyethers and both the hydrolyzable silicon-containing groups of the component A and the component B be expressed by the formula R2SiXaR13-a [R1 is a 1-20C (substituted) monovalent organic group; R2 is a divalent organic group; X is OH or a hydrolyzable group; (a)=1-3]. Furthermore, preferably, (C) a plasticizer, especially free from a low molecular plasticizer, is contained or a plasticizer is not substantially contained.

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CLAIMS

weight section of the molecular weights 4000-30000 which are hydrolytic silicon groups to polymer (I) molecular terminal groups are hydrolytic sillicon groups. And a room-temperature-curing nature constituent in which less than 50% of all the molecular terminal groups contain one to polymer (II)2000. Claim 1]Polymer (1) of the molecular weights 8000-30000 whose not less than 50% of all the

Claim 2]A room-tamperature-curing nature constituent of Claim 1 whose both main chain of polymer ()) and main chain of polymer (ii) are polycther intrinsically. Glaim 3]polymer (() — a room-temperature-curing nature constituent of Claim 1 by which both a hydrolytic silicon group and a hydrolytic silicon group of polymer (()) are expressed with a following

-R2-SIX R1 3-a -- (A) formula (A).

3 is a univalent organic group substitution of the carbon numbers 1-20, or unsubstituted among a

ormula, R2 is a divalent organic group, X is a hydroxyl group or a hydrolytic basis, and a is an integer Olaim 4]Claim 1, a room-temperature-curing nature constituent of 2 or 3 in which a roomtemperature-ouning nature constituent does not contain a plasticizer substantially. [Claim 6]Claim 1, a room-temperature-ouning nature constituent of 2 or 3 which a room-

temperature-curing nature constituent contains a plasticizer further, and do not contain a low

not less than 60% of all the molecular terminal groups are hydrolytic sillion groups. A manufacturing method of a room-room extense-curing nature constituent wherein less than 60% of all the molecular manufacturing nature constituent wherein less than 60% of all the molecular was made groups also not polymer (DI200 weight section of the molecular weights 4,000-5000) which are hydrolytic allong groups. Claim 6]As opposed to polymer (1)100 weight section of the molecular weights 8000-30000 whose molecule plasticizer as the plasticizer.

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DETAILED DESCRIPTION

Detailed Description of the Invention]

vou.1 Field of the invention!This invention relates to the room-temperature-ouring nature constituent landened under hygroscopic-surface-moisture existence. Description of the Prior ArtTha method of making harden various kinds of polymers which have a pydrolydic silicon group, and using it for a sealing material, adhesives, etc. is known wall, and is a nydrolydic silicon group, and using it for a sealing material, adhesives, etc. is known wall, and is a

useful method industrially.

D003(17ths polymer sepecially whose main chain is polyether among such compounds is flourthed at a commontatue, and witne to be temperature, and witne to hardened material holds plability also at low temperature or commontative, and material, adhesives, etc., it is provided with the desirable

Was a solven of each hypocopocyta-under-prositate a related by solven of the upways accoosis-surface-mostate hardenality which has hydrohite alloco group is mentioned to the indicated to gas 2522(X). As 3-452(X), due in the polyware which has a pithohite alloco group is mentioned to the structure and although the indicated and although the property of a polyware by the pithological polymer indicated to gas 252(X). As 3-452(X), due in the polyware which has a pithohite does not not use content and although the indicated partial increases, the viscosity of a polymer into polymer and although the generally large.

[0005]When the molecular veilint of such a polymer is small although viscosity becomes tow, a such and although viscosity becomes tow, a such as the pithologic and the indicates a monitor observable and although viscosity becomes tow, a such as the pithologic and the although viscosity becomes tow, a such as the polymer in the pithologic and the although viscosity of such as the active of the pithologic and the although viscosity of the although the discovered partial pithology of the partial pithology observable and and although the although on observable and an active after the college part countermoral and an every after the ran and although operation; which did not endow the pinhillies of the particles and and an active after the college particles and an active after the configuration and an active after the college particles and active after the soling particles at a fault.

[1007]The hardened anterior operations are contaminated and not an infally of the teached particles and an active after the configuration and an active after the soling particles at a fault and active after the soling particles and active after the configuration and an active and active after the configuration and active and ac

added the very low reaction to listiticize of translatability which has a proposed by Libe 2-60001A for the north of the hypotency currier maintain the indeathility which has a hydrolitic allicon group in order to answer as such a sealing order to arrive a such a sealing order or arrive as the hydrolitic billion group with the seal of the sealing order and arrived the constituent in which such a sealing or arrived to the sealing order or arrived the sealing order or which arrived the constituent in which such as the seal of the Allicology various living or for increasing a called for Allicology various living or for morganic polymer is easily of the Allicology various living or for morganic polymer is one publishy as much non-increasing called the living agent are usually as unchination or required for use of a building seal of the order to include the publicial properties of a fundered manner.

where the Particular is in missed from that is requested in the Public policy and the Particular polymers and the constitutional winds the constitution where the defined to the terminal measurant feet going under the public pu

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JP,09-095609,A [DETAILED DESCRIPTION]

it is do not use a plasticitizer, it had practical viscootity, and when a hardened material was flexible, it had that which hardening becomes very fact that the hardening becomes very flow 100 me camping which inchinemes minist and uses two or more series of hydrohydro silicon group (200 IOT) necessaries which inchinemes in which inchine member of hardening efficient, or 100 members to hardening efficient, or 100 members in which inchine and uses two or more series of hydrohydro allicon group content of 100 members of high inchinemes, and the series of high hydrohydro allicon group in all the molecular terminal groups of the polywhere more rease of the hydrohydro allicon group in all the molecular terminal groups of the polywhere remove reases of the hydrohydrolic micron group in all the molecular terminal groups of the polywhere which all mit in 100, when exceptible frompring laterial without a placefalling register, and exceptible register in a scheduler and extensive an extensive in a fairly applied to the plinkling of a markened market without as in scheduler.

[0011]
[0011]
Solved by Esolved by the InventionThen, even if the viscosity of the constituent could be assisted prevented by the constituent could be assisted prevented by an expension of the integral of the inferior and trains was flexible, the assisted by the Invention of Invention of Invention of

constituent which does not pollute a surface oast, it resulted in this invention.

[0013]

The area for Selective Problem/That it, this invention is the following invention. As apposed to polymer (I) (of the newsorian verying 5010-50000 L and polymer (I) (of weight invention where the polymer (I) (of weight invention where the selective problem of the polymer (I) (of weight invention where the selective of the newsorian verying the Selective Selective

Coto of an open continuation of the polymer (0) and polymer (0) a that are used by this Embodiment of the Inventional Act of the Inventional of a molecula for forefund invention, consisting in polymer, what is obtained by introducing a hydroxyla eliforn group by the suitable (10) (Age and a polymer, what is obtained by introducing a hydroxyla elifon group by the suitable

method for a solvether contribution the Moray forms is preferred.

1. A solvent is proposed by U.S.477826, U.S.47221A, U.S.47827A, U.S.47827A, U.S.47827A, U.S.47827A, U.S.47827A, U.S.47828A, U.S.478

101(6), polyeches constainire (hebroxy) (rough in behinde by polymerizing monoposide, such as 101(6), polyeches constainire (hebroxy) (rough in behinde by polymerizing monoposide, such as 100(10), polyeches constainire (hebroxy) (rough in relative an initiative and initiative

compoundant use may be autificated as these. An unsaturation group content more hydroxy compound the saily alcohol can also be used.

Compound the saily alcohol can also be used.

Compound the sail of the sail

(00:0)The hydrolytic silicon group should just be a silicon group with which hydrolytic and crossiling reaction court with hygrescopic surface moisture. The silicon content group which has the hydrolytic basis coupled directly with the silicon atom can be used. For example, the basis expressed with a formula (A) is preferred.

[00:21-R²-SN, R^2 $_{2-}$... (A) [00:21R² is a univalent organic group the aubethorion of the carbon numbers 1-20, or unsubstituted among a formula, R^2 is a division organic group, X is a hydroxyl group or a hydroyhob basis, and a is an integer of 1-3. http://www.f.ipdl.inpit.go.jp/cgf-bin/tran_web_ogi_ejje?atw_u=http%3A%2F%2Fwww4.ipdl.i.. 2010/08/05

0023]As R¹ in a formula (A), a with a carbon number of eight or less alkyl group, a phonyl group, and s fluoro alkyl group are preferred, and a methyl group, an ethyl group, a propyl group, a butyl group, a desirable X, a with a carbon number of four or less lower alkoxy group especially a methoxy group, an acyloxy group, an amide group, an amino group, an aminooxy group, a KETOKISHI mate group, and a 0024]X is a hydroxyl group or a hydrolytic basis, and there are a halogen stom, an alkoxy group, an nydrolytic basis which has a carbon atom among these, four or less are [six or less] preferred. As nydride group as a hydrolytic basis, for example, As for especially the carbon number of the nexyl group, a cyclohexyl group, especially a phenyl group, etc. are preferred.

0025]Next, the manufacturing method of polymer (I) and (II) is explained. These polymers introduce a ethoxy basis, a propoxy group, etc. can be illustrated. As for a, 2 or 3 is preferred.

0026](1) A method to which the silicon hydride compound expressed with what introduced the ydrolytic silicon group into the end of a polyether containing hydroxyl group by a method like ollowing the (1) – (4), and are manufactured.

unsaturation group into the end of hydroxyl group end polyether, and a formula (B) is made to react inder existence of a catalyst.

0028]However, Rin formula, X, and a are the same as the above.

.0027]HSiX_aR¹ 3-a ... (B)

ntroducing an unsaturation group into a side chain, or an initiator by carrying out copolymerization of which can react to the method or unsaturation group, and hydroxyl group which are made to react to 0030]When polymerizing monoepoxide in manufacture of hydroxyl group end polyether, It is obtained solyether with what introduced the unsaturation group into the end of hydroxyl group end polyether. group and polyether, and combining by the ester bond, a urethane bond, carbonate combination, etc. 0029]Here, an unsaturation group is introduced or more into one of the end of hydroxyl group end After setting terminal hydroxyl groups OH of hydroxyl group end polyether to OM (M is an alkaline netal) as this method, There is the method of making the compound which has a functional group unsaturation group content halogenated hydrocarbon, such as an allyl chloride, react to hydroxyl also by using a terminal unsaturated group content mono-hydroxy compound as the method of

100311(2) How to make the compound which has a hydrolytic silicon group expressed with an socyanate group and a formula (A) react to hydroxyl group end polyether. the unsaturation group content monospoxide, such as allyl glycidyl ether.

[0032](3) A method to which W basis of the silicon compound expressed with a formula (C) to this disooyanate, react to hydroxyl group end polyether and considering it as an isocyanate group end. isocyanate group is made to react after making polyisocyanate compounds, such as tolylene

[0034]However, R^IIn formula , X, and a are the same as the above, R² is a divalent organic group, and W is the active hydrogen containing group chosen from the hydroxyl group, the carboxyl group, the 0033]R1 3-4-SIX 4-R3W ... (C)

suffindry) group, and the amino group (the 1st class or the 2nd class). [0035](4) A method to which the unsaturation group of the thing which introduced the unsaturation group into the end of hydroxyl group end polyether, and the sulfhydryl group of a silicon compound expressed by the formula (C) whose W is a sulfhydryl group are made to react.

0036] The hydrolytic silicon cardinal numbers of polymor (I) of this invention are not less than 50% of 100% or less of all the molecular terminal groups, and are desirable. [not less than 60% of 100% or ess of] As for the molecular terminal cardinal number por molecule, 2-8 are preferred, and 2-[0037] The hydrolytic silicon groups of polymer (II) of this invention are less than 50% of all the especially 4 are preferred.

[0038]As polymer (I) of this invention, the polymer of the molecular weights 8000–30000 can be used. molecular terminal cardinal number per molecule, 2-8 are preferred, 3-especially 8 are preferred, and notecular terminal groups, and are desirable. [not less than 25% of less than 50% of] As for the 3-6 are still more preferred.

Espacially when the molecular weight of this polymer is lowar than 8000, in order to make a hardened material flexible, the rate of the hydrolytic silicon group of all the molecular terminal groups must be isseared as compared with what has a bigger molecular vesight and the fault take hardenshilty wareness arises. When a molecular weight scarced 30000, also after mixing with polymer (II), worstelling yets remarkably bad for hyperviscosity, Desirable analocular weights are 10000-20000, worstelling yets remarkably bad for hyperviscosity, Desirable analocular weights are 10000-20000. tttp://www4.ipdl.inpit.go.jp/cgi~bin/tran_web_cgi_ejje?atw_u=http%3A%2F%2Fwww4.ipdl.i.. 2010/08/05

workability gets remarkably bad for hyperviscosity. Desirablo molecular weights are 8000-20000. [00:40]The molecular weight of polymer (I) and polymer (II) is computed based on the hydroxyl value weight section. 20-100 weight-section use of polymer (II) is carried out especially preferably ten to ,0039]As polymer (II) of this invention, the polymer of the molecular weights 4000-30000 can be conversion value molacular weight of hydroxyl group end polyether which is a raw material. [0041]In this invention, 1–200 weight-section use of polymer (II) is carried out to polymer (I)100 used. Evon if it mixes with polymer (I), especially when hardenability will become bad when the molecular weight of this polymer is lower than 4000 and a molecular weight exceeds 30000,

material physical properties will be made to reveal quite freely, and it will get. That is, a more flexible hardened material is obtained by a hard hardened material being obtained by increasing the amount of properties of the hardened material produced by making harden a hardenability constituent with the ratio to mix are controllable. If this method is used, by the variety of few polymers, many hardened 0043]Thus, the advantage of mixing and using two or more sorts of polymers is that the physical 0042]The room-temperature-ouring nature constituent in this invention can be manufactured by bolymer (I) used, and increasing the amount of polymer (II) used, and the middle can be chosen mixing one to polymer (II)200 weight section to polymer (I)100 weight section. 50 weight section.

acid, p-foldenesulforic acid, and phthalic acid, a butylamine, Aliphatic series monoamines, such as hexylamine, octylamine, decyl amine, and lauryl amine, Aliphatic diamine, such as ethylenediamine and hexylamine, such as ethylenediamine and [0045]The following compound can be used as a curing catalyst. Metal salt, such as an alkyl titanate, an organic silicon titanate, and bismuth tria-2-ethylhexoete, Acidic compounds, such as phosphoric such as piperidine and a piperazine, and a meta-phenylenediamine, ethanolamines, triethylamine, and (0044) In the constituent of this invention, if necessary to publicly known various curing catalysts, a tetraethylenepentamine. Amine compounds, such as aromatic amine, such as heterocyclic amine, [0046]Divalent tin and the mixture of the above-mentioned amines of tin dioctylate, JINAFUTEN a hexancdiamine, diethylenetriamine, Aliphatio polyamine, such as triethylenetetramine and bulking agent, an additive agent, and a pan, a solvent, a plasticizer, etc. can be included. various denaturation amine used as a hardening agent of an epoxy resin.

(0047]Dibutyitin discetate, dibutyitin dilaurate, diockyl tin dilaurate, the following carboxylic type organic tin compound, and the mixture of these carboxylic type organic tin compounds and the (0C00H=CHC00C4H3-n) 2, (n-C8H17) 2Sn(0C0CH=CHC00CH3) 2, (n-C8H17) 2Sn above-mentioned amines. (n-C4H₉) 2Sn(OCOCH=CHCOOCH₃) 2, (n-C4H₉) 2Sn $(OCOCH=CHCOOC_4H_9^{-m})^{2}, (n-O_8^{H_17})^{2}Sn(OCOCH=CHCOOC_8^{H_17^{-lao}})^{2}$ **** distearic acid tin, etc.

[0048]The following sulfur-containing mold organic tin compound. (n-C, H₉) ₂Sn (SCH₂COO), (n-C₈H₁₇) ₂ Sn (SCH₂COO), (n-C₈H₁₇) ₂Sn (SCH₂CH₂COO), (n-C₈H₁₇) ₂Sn

[0049](n-C4Hg) Organic tin oxide, such as 2SnO and (n-O8Hy)2SnO. And the resultant of these SCH2COOCH2CH2SOCOCH2S), (n-C4H3) 2Sn(SCH2COOC8H17-160) 2, (n-C8H17) 2Sn (SCH2COOC₈H₁₇-iso) ₂, (n-C₈H₁₇) ₂Sn(SCH₂COOC₈H₁₇-n) ₂, and (n-C₄H₉)2SnS.

digent of the construction of the physical phys organic tin oxide and ester compounds, such as ethyl silicate, dimethyl maleate, a diethyl maleate,

[0051]The following tin compound $(n-C_4H_9)_2(CH_3COO)$ SnOSn(OCOCH $_3$) $(n-C_4H_9)_2$ $(n-C_2H_0)_2$ (n-C4Ha)2(C8H170) Sn (acao).

[0052]If it is considered as a bulking agent, the publicly known following bulking agent can be used. The calcium carbonata which carried out the surface treatment of the surface with fatty acid or a (CH3O) SnOSn(OCH3) (n-C4Hg) 2.

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pentonite, organio bentonite, ferric oxide, a zinc oxide, an active white, a milt balloon, wood flour, pulp, one to 1000% of the weight to the sum total of polymer (I) and polymer (II). These bulking agents may cotton chip, mica, and the blacking wash farina — rubbing — powder state bulking agents, such as vecipitated calcium carbonate with a mean particle diameter of 1–3 micrometers manufactured with arina, graphite, aluminum impalpable powder, and the Flint powder. Fibrous fillers, such as asbestos, 0053]As for especially the amount of the bulking agent used, 50 to 250 % of the weight is preferred nicrometers, Fumes silica, sedimentation nature silica, a silicic soid anhydride, hydrous silicic acids, micrometer or less which furtharmore impalpable-powder-ized this, Calcium carbonate, such as he sedimentation method, and heavy calcium carbonate with a mean particle diameter of 1-20 esin acid system organio matter, Colloid calcium carbonate with a mean particle diameter of 1 and carbon black, Magnesium carbonata, diatomite, calcination clay, clay, tale, titanium oxide, plass fiber, a glass filament, carbon fiber, the Kevlar textiles, and a polyethylene fiber.

alkyl ester; pentaerythritol ester, such as succinic acid diisodecyl, dibutyl sebacate, and butyl olesto; nvention is fully hypoviscosity in itself and it is preferred not to use a plasticizer substantially. As a plasticizer, for example Dioctyl phthalate, dibutyl phtalate, Phthalic acid alkyl ester, such as phthalic 0054]A plasticizer may be used, although the room-temperature-curing nature constituent in this paraffin, such as epoxidized soybean oil and epoxy atearic acid benzyl, etc. can be independent, or acid benzyl butyl ester, Dioctyl adipate, Glucohol ester species, such as aliphatic-carboxylic-acid Proctyl phosphate, Phosphoric eater, such as trioresyl phosphate; epoxy plasticizer, chlorinated se used independently and may be used together two or more sorts.

nature constituent of this invention to contain a plasticizer further, and not to contain a low molecule blasticizer as the plasticizer. The compound itself is low molecular weight, and a low molecule plasticizers, and it is preferred not to use it. That is, it is preferred for the room-temperature-curing plasticizer refers to the plasticizer which does not have a reactant group. For example, it is phthalic 0055]However, a low molecule plasticizer has the problem which is this invention of being easy to carry out after [room-temparature-ouring nature constituent hardening] blead out, among such can use it with two or more sorts of mixtures.

0056]To the constituent of this invention, a hydrolytic silicon compound can be arbitrarily added in specifically Tetramethyl silicate, viryltrimetoxysilane, Although the compound etc. in which methyl order to adjust physical properties and hardenability of a hardened material. As such a compound, trimetoxysilane, dimethyldimethoxysilane, trimethylmethoxysilane, etc. and these methoxy groups were replaced by the ethoxy basis can be illustrated, it is not limited to these.

paints, various kinds of stabilizer, and surface treatment like oligoester acrylate etc. are mentioned. A 10057]As an additive agent, the photovesist compound aiming at adhesion grant agents, such as a bhicotropy grant agent, phenol resin, an epoxy resin, etc. and verious kinds of silane coupling agents, 0058]The room-temperature-curing nature constituent of this invention oan be used as a sealing naterial especially an elastic sealing compound, and adhosives. solvent can also be used in ordar to prepare viscosity.

the synthetic examples 1-6, the synthetic example 13 of polymer (II) of the synthetic examples 7-12 below and this invention is explained to it still in detail, this invention is not limited to these. As for Example JAtthough a synthetic example, working example, and a comparative example are given to

dimethoxysilane by having made chloroplatinic acid into the catalyst furthermore, and introduced the the bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex compound catalyst nto an allyloxy group the terminal hydroxyl groups of the polyoxypropylene diel produced by making 0060][Synthetic example 1] Ethylene glycol was used as the initiator, and it refined, after changing methyl dimethoxy silyl propyl group into 60% of all the molecular terminal groups was compounded. react. The polymer a of the molecular weight 17000 [about] which made it react to methy! of polymer (I) is a synthetic example of the polymer for comparison.

[0061][Synthetic example 2] The polymer b of the molecular weight 17000 [about] which introduced the methyl dimethoxy silv) propyl group into 75% of all the molecular forming groups by the same method as the synthetic countries, was consourced. The viceosity in 75 % * was 15200AP. (000215/whitheir countries of 30 (sycorin was used as the initiator, and it refinded, after champing into an The viscosity in 25 ** was 15000cP.

bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex compound catalyst react. The polymer c of the molecular waight 18000 [about] which made it react to methyl dimethoxysilane allyloxy group the terminal hydroxyl groups of the polyoxypropylene triol produced by making the dimethoxy ally propyl group into 60% of all the molecular terminal groups was compounded. The by having made chloroplatinic acid into the catalyst furtharmore, and introduced the methyl

[0086][Synthetic example 7] The polymer g of the molecular weight 18000 [about] which introduced introduced tha methyl dimethoxy silyl propyl group into the end was compounded. The viscosity in 25 0063][Synthetic example 4] The polymer d of the molecular weight 10000 [about] which introduced [0064][Synthetic example 5] The polymer e of the molecular weight 15000 [about] which introduced react. After making methyl dimethoxysilane of a 120% considerable amount react to all the molecular terminal groups by making chloroplatinic acid into a catalyst furthermore, the unreacted material was into an allyloxy group the terminal hydroxyl groups of the polyoxypropylene diol produced by making the bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex compound catalyst 0065][Synthetic example 6] Ethylene glycol was used as the initiator, and it refined, after changing distilled off under decomprassion, and the polymer f of the molecular weight 9000 [about] which the methyl dimethoxy silyl propyl group into 35% of all the molecular terminal groups by the same the methyl dimethoxy sliyl propyl group into 84% of all the molecular terminal groups by the same the methyl dimethoxy silyl propyl group into 91% of all the molecular terminal groups by the same method as the synthetic example 3 was compounded. The viscosity in 25 ** was 10500cP. method as the synthetic example 3 was compounded. The viscosity in 25 ** was 3000oP. method as the synthetic example 3 was compounded. The viscosity in 25 ** was 8800oP. viscosity in 25 ** was 10500cP. ** was 5400oP.

bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex compound catalyst react. The polymer i of the molecular weight 9000 [about] which made it react to methyldiethoxysilane by 0088][Synthetic example 9] Glycorin was used as the initiator, and it refined, after changing into an sthoxysilylpropyl group into 45% of all the molecular terminal groups was compounded. The viscosity 0067][Synthetic example 8] The polymer h of the molecular weight 9000 [about] which introduced the methyl dimethoxy silyl propyl group into 35% of all the molecular terminal groups by the same allyloxy group the terminal hydroxyl groups of the polyoxypropylene triol produced by making the having made chloroplatinic acid into the catalyst furthermore, and introduced the methyldi method as the synthetic example 3 was compounded. The viscosity in 25 ** was 2800oP.

0070][Synthetic example 11] The polymer k of the molecular weight 8000 [about] which introduced (0069)[Synthetic example 10] Pentaerythritol was used as the initiator, and it refined, after changing dimethoxysilane react by having made chloroplatinic acid into the catalyst furthermore, and introduced the methyl dimethoxy silyl propyl group into 35% of all the molecular terminal groups was making the bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex compound into an allyloxy group the terminal hydroxyl groups of the polyoxypropylene tetrsol produced by catalyst react. The polymer j of the molecular weight 17000 [about] which made methyl compounded. The viscosity in 25 ** was 6000cP. in 25 ** was 2800cP.

bottom propylene oxide of existence of a zinc hexa oyanocobalitate complex compound catalyst react. Methyl dimethoxysilane was made to react by having made ohloroplatinic acid into the catalyst 0071][Synthetic example 12] Sorbitol was used as the initiator, and it refined, after changing into an furthermore, and the polymer I of the molecular weight 12000 [about] which introduced the methyl dinethoxy silyl propyl group into 20% of all the molecular terminal groups was compounded. The allyloxy group the terminal hydroxyl groups of the polyoxypropylene hexaol produced by making the the methyl dimethoxy silyl propyl group into 25% of all the molecular terminal groups by the same method as the synthetic example 10 was compounded. The viscosity in 25 ** was 2000oP. viscosity in 25 ** was 2200cP.

0072][Synthetic example 13] Glycerin was used as the initiator, after changing into an allyloxy group the terminal hydroxyl groups of the polyoxypropylene triol produced by making the bottom propylene oxide of existence of a zinc haxa cyanocobaltate complex compound catalyst react, it refined, and the polymer m of the molecular weight 9000 [about] was obtained. The viscosity in 25 ** was ttp://www4.ipdl.inpit.go.jp/cgi-bin/tran_web_cgi_ejje?atw_u=http%3A%2F%2Fwww4.ipdl... 2010/08/05

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absorbent and light stabilizor, the Ciba-Geigy make, tinuvin B752 copy, Five copies of photo-setting bolymer (II) (or polymer for comparison) or them, and dioctyl phthalate (DOP)] in Tablea 1-2, mixed dakuenka CCR), and calcium carbonate (Shiroishi calcium company make.) 75 copies of HOWAITON 0074]Next, mixed liquor 160 weight section (it is hereafter considered as a part) of a polymer (or a 5B, 30 copies of titanium dioxides, and stabilizer (an antioxidant.) The mixture of an ultraviolet ray 0073][Working example 1-6 and comparative examples 1-6] It mixed at a rate given [polymer (D, eains (the Toggosei Chemical Industry Co., Ltd. make, ARONIKUSU M6020), two copies of silane oolymer and DOP) is received, 75 copies of calcium carbonate (Shiroishi calcium company make, liquor was obtained, and the viscosity (unit: cP) at the 25 ** was measured.

[0075](1) 50% modulus (unit: kg/cm²), breaking strength (unit: kg/cm²), and after being extended (unit grant agent 1 copy and two copies of dibuty! tin bisacetylacetonate (the Nihon Kagaku Sangyo Co., Ltd. make, NASEMUSUZU), and moisture does not mix, and was considered as the uniform mixture. s) and using :mixture as a sheet about 2 mm thick, After carrying out cure for seven days at 50 ** subsequently for sevan days at 20 **, it measured about what was pierced with the JIS No. 3 Subsequently, the following (1) - (5) was evaluated and the result was shown in Tables 1–2

(usumoto Chemicals.) It kneaded under the conditions which add fatty-acid-amide system thixotropy

coupling agents (the Shin-Etsu Chemical Co., Ltd. make, KBM603), and DISUPARON 6500 (made in

0076](2) Hardenability : tha hardenability after 6-hour neglect was judged for the mixture by finger ouch under the condition of 20 ** and 65%RH. It was assumed that that from which O is a tuck reclancer in evaluation, and x are not a tuck freelancer.

(9077](3) Pliability of a hardened material : the pliability of the hardened material in which carried out Jesirable as a scaling material for construction is too hard as a sealing material for construction] --sure of this mixture and it was obtained was also evaluated. O or [that x which has pliability

0078](4) Aging : there is no bleed out, such as an unreacted material, in the surface after two-week neglect at 50 $m st_*$, or the unpainted hardened material surface was examined by finger touch. O As for what bleed out was not accepted to, and x, bleed out should be accepted. or it was presupposed that it is too soft.

Paint Co., Ltd. make, house paint) to what was stiffened as a 1-cm thickness sheet, and one month 0079](5) Stain resistance of a paint surface : after painting a solvent system alkyd paint (the Rock sfter being exposed to the outdoors after one-week heating at 70 **, the dirt situation of the paint surface was observed. O Although dirt had adhered a little, a beautiful thing and x assumed that adhesion of dust etc. is remarkable and dirty.

cannot be revealed as a tabla shows. A paint film surface is made to pollute with the compound which uses dioctyl phthalate, and it is not desirable what performed surface costing. In the case where the polymer in which one does not have a hydrolytic silicon group is used, the polymor for which a bridge s not constructed over the hardened material aurface carries out bleed cut from a hardened material [0060] in the case (the comparative example 2, the comparative example 4) where polymer (II) is not used, the pliability in which a hardened material is too hard and it is desirable as a sealing material and it is not desirable.

10300 650 100 0000 100 6.0 2000 820 750 000 9 30 10800 20 0 000 6.0 0096 30 000 8 1 0 9600 0 2 0 30 9 0000 01 30 830 20 o 00 60%モジュラス 施設表面の市場布 変化物の素飲性 **斯斯斯**克 年報光 12# 超級

Table 2 0082

IL BEAUT	さららの と 祭代	DOP	粘膜	50%モジュラス 経済関連 存び 原化様 終化物の条款性 無印象化 施装表面の形容性
-	300		0096	0 × 0 0 % 8.8.8
N	160		3000	4.0.4
0	3.0	0.9	0008	8. 8. 0 7. 0 0 0 0 ×
7	112		13700	3. 8 72.0 0 × 0 × 0
	160		10500	
0	8 0 8		7100	

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[Effect of the Invention]Even if the room-temperature-current parts contribute to this invention has been developed and the set of the set of the invention that because in the set of the

Translation done.

NOTICES *

damages caused by the use of this translation. JPD and INPIT are not responsible for any

This document has been translated by computer. So the translation may not reflact the original

2**** shows the word which can not be translated.

In the drawings, any words are not translated.

SORRECTION OR AMENDMENT

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Filing date]Heisei 13(2001) December 27 (2001.12.27) Written Amendment Amendment 1]

Document to be Amended Description Item(s) to be Amended]Claims

Method of Amendment]Change Proposed Amendment

Claim(s)

constituent in which less than 50% of all the molecular terminal groups contain one to polymer (ID200 weight section of the molecular weights 4000–30000 which are hydrolytic silicon groups to polymer (I) nolecular terminal groups are hydrolytic silicon groups, And a room-temperature-curing nature Claim 1]Polymer (I) of the molecular weights 8000-30000 whose not less than 50% of all the

Claim 2]The room-temperature-curing nature constituent according to claim 1 whose both main shain of polymer (I) and main chain of polymer (II) are polyether intrinsically.

Claim 3]The room-temperature-curing nature constituent according to claim 1 or 2 in which a room-Claim 4]The room-temperature-ouning nature constituent according to claim 1 or 2 which a roomtemperature-curing nature constituent contains a plasticizer further, and does not contain a low temperature-ouring nature constituent does not contain a plasticizer substantially.

molecule plasticizer as the plasticizar.

iot lass than 50% of all the molecular terminal groups are hydrolytic silicon groups. A manufacturing Claim 5] As opposed to polymer (1)100 weight section of the molecular weights 8000-30000 whose

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terminal groups mix one to polymer (1),200 weight section of tha molecular weights 4000-30000 which nethod of a room-temperature-ouring nature constituent, wherein less than 50% of all the molecular are hydrolytic silicon groups.

Document to be Amended Description Amendment 2]

Item(s) to be Amended 00003

Method of Amendment Change Proposed Amendment

0003]The polymer especially whose main chain is polyether among such compounds is liquefied at a comparatively and uses for a sealing material, adhesives, etc.. it is provided with the desirable room temperature, and when a hardened material holds pliability also at low temperature

Document to be Amended Description Amendment 3] characteristic.

Method of Amendment Change Item(s) to be Amended]0007

has the good characteristic of elongation and it paints on the surface, the hardenability constituent in order to cancel such a fault. However, in the use to a scaling material etc., when pliability is higher, it 0007]The hardenability constituent in which the pliability of the hardened material was not reduced polymer of the hygroscopic-surface-moisture hardenability which has a hydrolytic allicon group in and translatability added the very low reactant plasticizer was proposed by JP,5-59267,A to the Proposed Amendment

which surface stain resistance has been improved is called for. Aithough various kinds of inorganic bulking agents are usually used in combination called a actual sealing material and acheeives, a polymer's own pliability is much more required for use of a bulking agent in order to harden the chysical properties of a hardened material.

Document to be Amended]Description [Item(s) to be Amended]0038 Amendment 4]

[Method of Amendment]Change

(0038)As polymer (I) of this invention, the polymer of the molecular weights 8000–30000 can be used. Especially when the molecular weight of this polymer is lower than 8000, in order to make a hardened [Proposed Amendment]

material feache, the figuit which must learen; the rate of the hydrotytic allean group of all the molecular terming robus as an among the molecular terming robus as a consecred terming robus as one to the whole introduced in the whole introduced in the whole when the property and the whole introduced with vertex as arrives. When a molecular weight exceeds \$2000, also after mixing with polymer introduced with the property of th 10, workability gots remarkably bad for hyperviscosity. Desirable molecular weights are 10000-20000.

Document to be Amended Description Item(s) to be Amended]0039 Amendment 5

Method of Amendment]Change

Proposed Amendment

used. Especially when the molecular weight of this polymer is lower than 4000, even if it mixes with polymer (<u>0),</u> hardenability will become bad, and when a molecular weight exceeds 30000, workability gets remarkably bad for hyperviscosity. Desirable molecular weights are 8000–20000. (3039]As polymer (II) of this invention, the polymer of the molecular weights 4000-30000 can be

Document to be Amended Description Amendment 6]

Method of Amendment Change (item(s) to be Amended]0045

an organic silicon titanate, and bismuth tris-2-ethylhexanoate. Acidic compounds, auch as phosphoric acid, p-toluenesulfonio sold, and phthalic sold, a butylamine. Aliphatic saries monoamines, such as hexylamine, octylamine, dacyl amine, and lauryl amine, Aliphatic diamine, such as ethylenediamine and [0045]The following compound can be used as a curing catalyst. Metal salt, such as an alkyl titanate, a hexanediamine, diethylenetriamine, Aliphatic polyamine, such as triethylenetetramine and Proposed Amendment

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such as piperidine and a piperazine, and a meta-phenylenediamine, ethanolamines, triethylamine, and setraethylenspentamine. Amine compounds, such as aromatic amine, such as heterocyclic amine,

various denaturation amine used as a hardaning agent of an epoxy resin. Amendment 7]

Document to be Amended Description

Method of Amendment]Change Item(s) to be Amended]0052

micrometer or less which furthermore impalpable-powder-ized this. Calcium carbonate, such as procipitated catcium carbonate with a mean particle diameter of 1–3 micromotors manufactured with The calcium carbonate which carried out the surface treatment of the surface with fatty acid or a resin acid system organic matter, Colloid calcium carbonate with a mean particle diameter of 1 0052]If it is considered as a bulking agent, the publicly known following bulking agent can be used. Proposed Amendment

minrometers. <u>Emmed silles,</u> sedimentation nature silles, a silicie acid univolride hydrous silicie acids, acorden labek, Magalasim carborant, discomin, cambrindon day, day, tale, thannon oride. Powders state bulling agents, such as brincinite, organic benchiele, formit oxide, a sind rock, an acide withe, a mit bailonn, wood flour, pulp, a ootton chip, mica, backing wash <u>shell flour, chaff p</u>owder, graphite, aluminum impalpable powder, and the Fiirt powder, <u>Florous fillers, auch as glass files</u>, a glass filament, the sedimentation method, and heavy calcium carbonate with a mean particle diameter of 1–20

carbon fiber, the Kevlar textiles, and a polyethylene fiber.

Document to be Amended Description [Amendment 8]

Method of Amendment Change Item(s) to be Amended]0054

0054]A plasticizer may be used, although the room-temperature-curing nature constituent in this Proposed Amendment

invention is fully hypoviscosity in itself and it is preferred not to use a plasticizer substantially. As a plasticizer, for example Dioctyl phthalate, dibutyl phtalate, Phthalic acid alkyl ester such as phthalic scid benzyl butyl ester, Dioctyl adipate, Aliphatic-carboxylic-acid alkyl ester, pentacrythritol ester,

such as succinic acid discoderol, dibutyl seksecte, and butyl oleste etc., Tricotyl phraphete, Phrosphoric sekse, and as tricreal phraphete group pleateboar chlorinated paraffir, and as spoordized solvies no il and spoxy staario acid berzyl, etc. can be independent, or can use it with two spoordized solvies no.

or more sorts of mixtures. Amondment 91

Document to be Amended Description Item(s) to be Amended[0055

Method of Amendment]Change Proposed Amendment

nature constituent of this invention to contain a plasticiter further; and not to contain a low molecule plasticiteze as the plasticiter. The compound healt is ble melecular weight and to be not molecule plasticiter refer so the plasticiter which does not have a resolunt group. For example, it is pithhalic plasticizers, and it is preferred not to use it. That is, it is preferred for the room-temperature-curing [0055]However, a low molecule pleaticizer has a <u>problem this invantion tends to</u> carry out [a problem] after [room-temperature-curing nature constituent hardening] bleed out among auch problem] after [

Amendment 10] icid alkvi ester.

Document to be Amended Description Method of Amendment Change Item(s) to be Amended]0083

[Effect of the Invention]Even if the room-temperature-curing nature constituent of this invention has low viscosity enough and it uses an inregame belowing agent, it has the difficial for it reducing the plaining of a hardward material. When the constituent of this invention is used for a scaling material cort, those not have contamination on the adverse effect to an advestive property of the ceiling part circumference or a paint surface. Proposed Amendment

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